that the Office notify Applicants' representative so that the appropriate corrective action can be worked out.

Claims 15, 30, and 73-82 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Easton (USP 5,764,687) (henceforth "Easton") in view of Lundby et al. (US Publication 2003/0174758) (henceforth, "Lundby"). (Applicants again assume that the Office Action's reference to "admitted prior art" in the first sentence of numbered paragraph 2 was a typographical error, since "admitted prior art" is not mentioned anywhere else in the rejection.) This rejection is respectfully traversed.

As explained in Applicants' specification beginning at page 18, line 17, the problem of how to handle a frequency error between a local frequency reference of a receiver such as a mobile station and the carrier frequency of a transmitter is aggravated if the receiver receives signals from multiple transmitters at the same time, e.g., if a mobile station is communicating with more than one base station simultaneously, as in a soft handover situation. This problem is addressed by handling received path rays from different base stations separately. This is useful because, by individually applying the AFC algorithms to each base station, the frequency offset between the mobile station and the base stations can be determined, thereby allowing a decision to be made as to what the final frequency offset should be. See, e.g., Applicants' specification at page 19, lines 9-22.

Independent claims 15, 30, 73, and 75 define embodiments that include this solution to the problem. In particular, claim 15 defines a transceiver that includes, *inter alia*, "frequency error estimators for computing a frequency error estimate for each ray based on successive values of a respective one of the channel estimates; and at least two summers for performing weighted summations of groups of the frequency error estimates to provide at least two combined frequency error estimates, wherein: each of the combined frequency error estimates corresponds to a respectively different one of at least two base station transmitters" (emphasis added).

Independent claim 30 similarly defines a method that includes, *inter alia*, "performing at least two weighted summations of groups of the frequency error estimates to provide at least two combined frequency error estimates, wherein each of the combined frequency error estimates corresponds to a respectively different one of at least two base station transmitters" (emphasis added).

Similarly, independent claim 73 defines an apparatus that comprises, "frequency error estimators for estimating frequency errors separately for different signal paths; and combiners for combining groups of the frequency error estimates to produce at least two combined frequency error estimates" (emphasis added).

Independent claim 75 similarly defines a method that comprises "estimating frequency errors separately for different signal paths; and combining groups of the frequency error estimates to produce at least two combined frequency error estimates" (emphasis added).

The Office now acknowledges that Easton fails to disclose producing at least two combined frequency error estimates and at least two summers for performing weighted summations of groups of the frequency error estimates to provide at least two combined frequency error estimates, wherein each of the combined frequency error estimates corresponds to a respectively different one of at least two base station transmitters. The Office now relies on Lundby as making up for these deficiencies.

This reliance is unfounded for a number of reasons. To begin with, Lundby describes a method for improving the transmission of information signals in a communications system having a base station and a remote station. As summarized in Lundby's Abstract, first and second transmission links are established with the remote station. An information signal is encoded to provide an encoded information signal having more bits than the information signal. First and second transmission signals are then provided wherein each transmission signal has bits selected from the encoded information signal. Each of the first and second transmission signals is transmitted to the remote station by way of a respective one of first and second transmission links. The remote station receives and combines the first and second transmission signals transmitted by the remote station to provide a combined encoded signal, which is then decoded by the remote station to provide the information signal.

What Lundby describes, then, is part of the Rake combining process for symbol estimation, not frequency error estimation as recited in Applicants' claims. In fact, Applicants are unable to find any mention of frequency error and frequency correction whatsoever in Lundby.

In support of its rejection, the Office particularly relies on those aspects of Lundby that are illustrated in Figure 9. This reliance is inapposite because Lundby merely discloses summing of a group of primary channel fingers and summing of a group of secondary

fingers. In particular, the things being summed in Lundby's arrangement correspond to the products of traffic despread values (output of 920A) and the conjugates of channel estimates (output of 940A & B). Unlike Applicants' claimed invention, Lundby's summation has nothing to do with frequency error estimation.

The Office further argues that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the CDMA transceiver apparatus and method of Easton with the teaching of Lundby such that it will employ using a plurality of two-channel fingers to provide a rescaled group of primary and secondary channel estimates to a summing circuit that comprises a first summer for a first group of primary channel outputs and a second summer for a second group of secondary channel outputs. The purported motivation for doing so is to use the two channels rather than one to produce a higher gain and a reduced power transmission requirement within the communication system because the transmit power of each of the transmission channels can be less than one half the transmit power needed to maintain a desired bit error rate had only a single channel been used.

With all due respect, the Office's argument is flawed in this regard. To begin with, Lundby describes two possibilities: one in which the first and second transmission links are formed between the remote station and a single base station; and another possibility in which the first and second transmission links are formed between the remote station and two separate base stations. (See, e.g., the last sentence of Lundby's abstract.)

If one first considers the embodiment involving only a single base station, it is immediately apparent that there is no need to perform two frequency error estimations, since the frequency error between the transmitter and receiver will not be different for the two transmission links. There would therefore be no need to replicate this logic in Easton. Moreover, this single-transmitter embodiment clearly fails to satisfy the requirements of claims 15 and 30 that "each of the combined frequency error estimates corresponds to a respectively different one of at least two base station transmitters" (emphasis added.)

This leads to a consideration of Lundby's other embodiment, which involves one receiver and two separate base stations. Lundby explains on page 3, paragraph [0027], that that the technique of sending some of the encoded bits stream on one link and the remaining parts of the encoded bit stream on another link is useable during soft handoff, in which case one base station sends the first encoded bit stream and the other base station sends the other

encoded bit stream. The receiver then combines these separately received bit streams in the manner further described by Lundby. Again, Lundby is silent with respect to determining frequency errors.

Referring back now to the Easton reference, it too considers how to handle soft handoff. In particular, Easton at column 3, lines 59 et seq. describes the soft handoff situation as merely another source of path diversity. In deciding how soft handoff might affect the design, Easton teaches, beginning at column 14, lines 51, that "in two way or three way hand-off, the mobile can take power decisions from two or three cells at the same time." Accordingly, Easton goes on to describe how the logic of the symbol combiner 22 (see Fig. 2) is adapted (illustrated in Fig. 5) to take this into account. Nowhere does Easton consider that separate frequency errors should be determined for the different base stations. Rather, Easton's frequency combiner 26 continues to sum frequency errors from all paths *regardless of which transmitter those paths are associated with.*

It is apparent, then, that even if one were to combine the teachings of Lundby with those of Easton, the combination would still fail to include producing at least two combined frequency error estimates, as defined by Applicants' claims. Rather, the teachings of Lundby would lead to a modification of Easton's symbol combiner 22 (see Easton Fig. 2), since this is where the separately received bits streams of the two transmission links would be combined. This in no way affects Easton's frequency combiner 26. And, as already explained, Easton does not consider it necessary to perform two frequency error estimates, even during soft handoff situations involving multiple base stations. The Office is reminded that "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." See MPEP §2143.01, page 2100-132 (Rev. 2, May 2004).

In view of the foregoing, it is respectfully asserted that each of the independent claims 15, 30, 73, and 75, as well as their related dependent claims 74 and 76-82 are patentably distinguishable over the prior art of record. Accordingly, it is respectfully requested that the rejection of claims 15, 30, and 73-82 under 35 U.S.C. §103(a) be withdrawn.

The application is believed to be in condition for allowance. Prompt notice of same is respectfully requested.

Respectfully submitted,
Potomac Patent Group PLLC

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